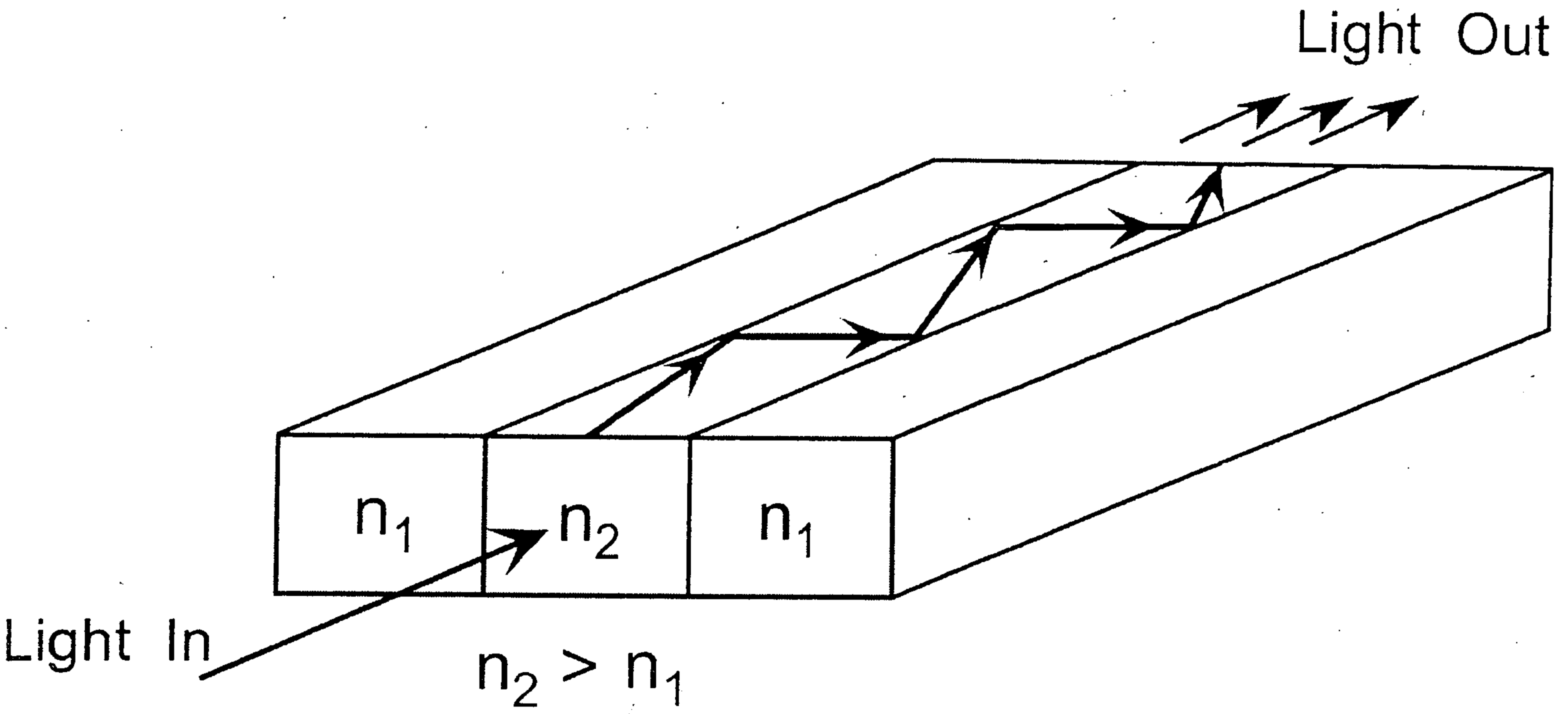
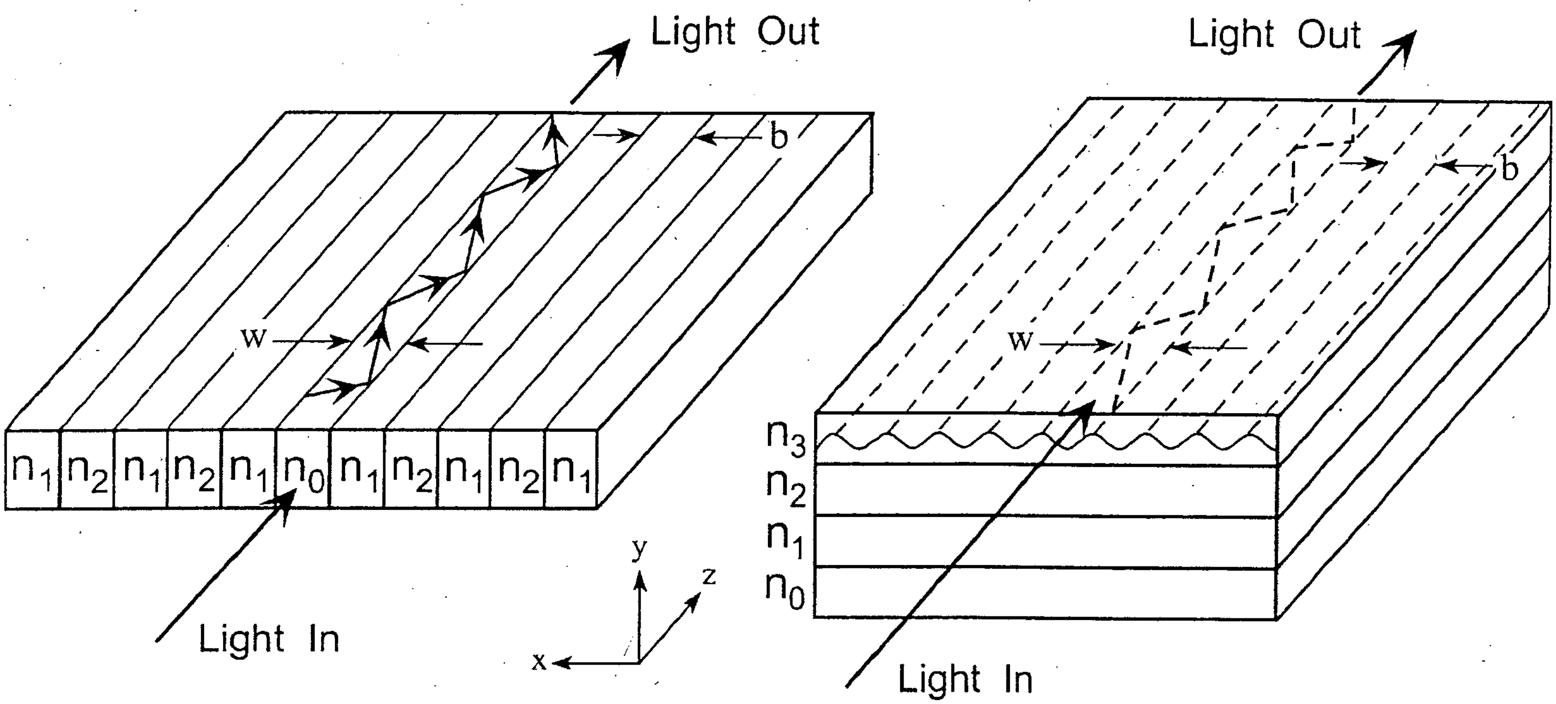


Fig. 1 A conventional dielectric waveguide.
The optical mode can be visualized as a plane wave zigzagging down the high index (n_2) channel.

(prior art)



(a)

(b)

Fig. 2 (a) A planer realization of a transverse Bragg Waveguide layers
(b) The planer alternating periodicity is due to a corrugated wavy interface of an epitaxially grown multilayer

(prior art)

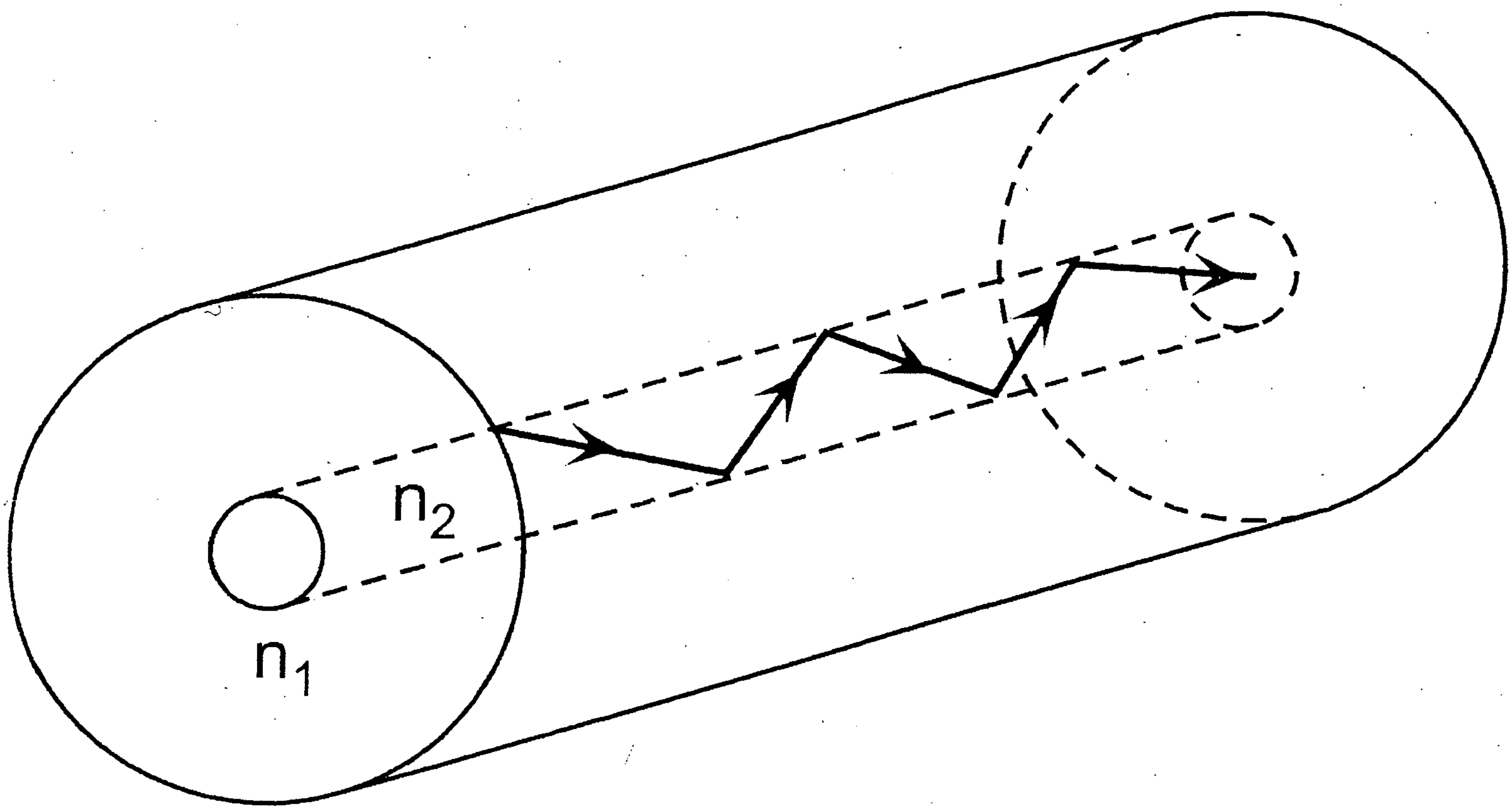


Fig. 3 A conventional dielectric fiber ($n_2 > n_1$) such as used in optical fiber communication.

(prior art)

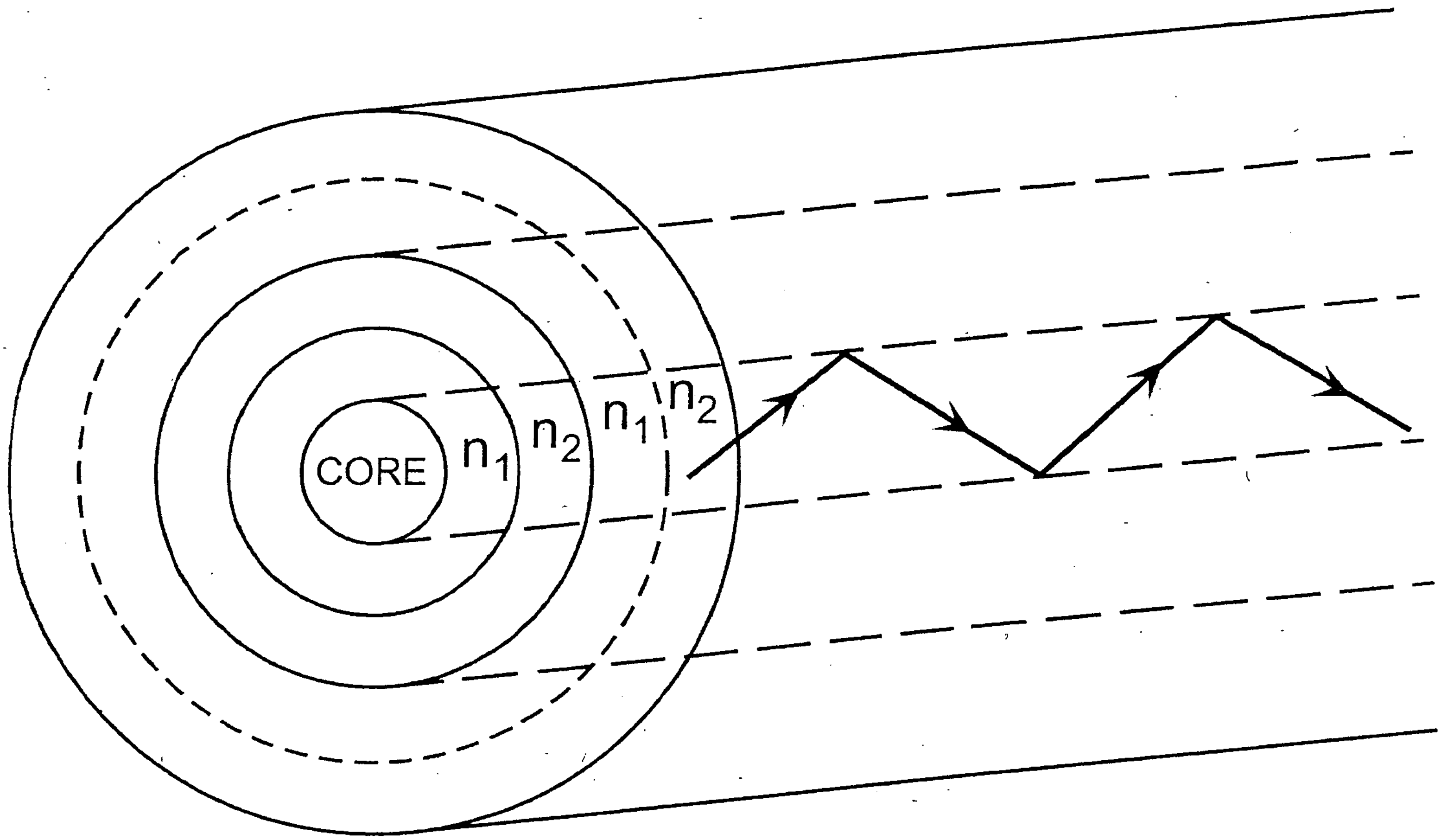


Fig. 4a. A cylindrical Bragg fiber. Light is guider in the Core and is Bragg reflected at the interface.

(prior art)

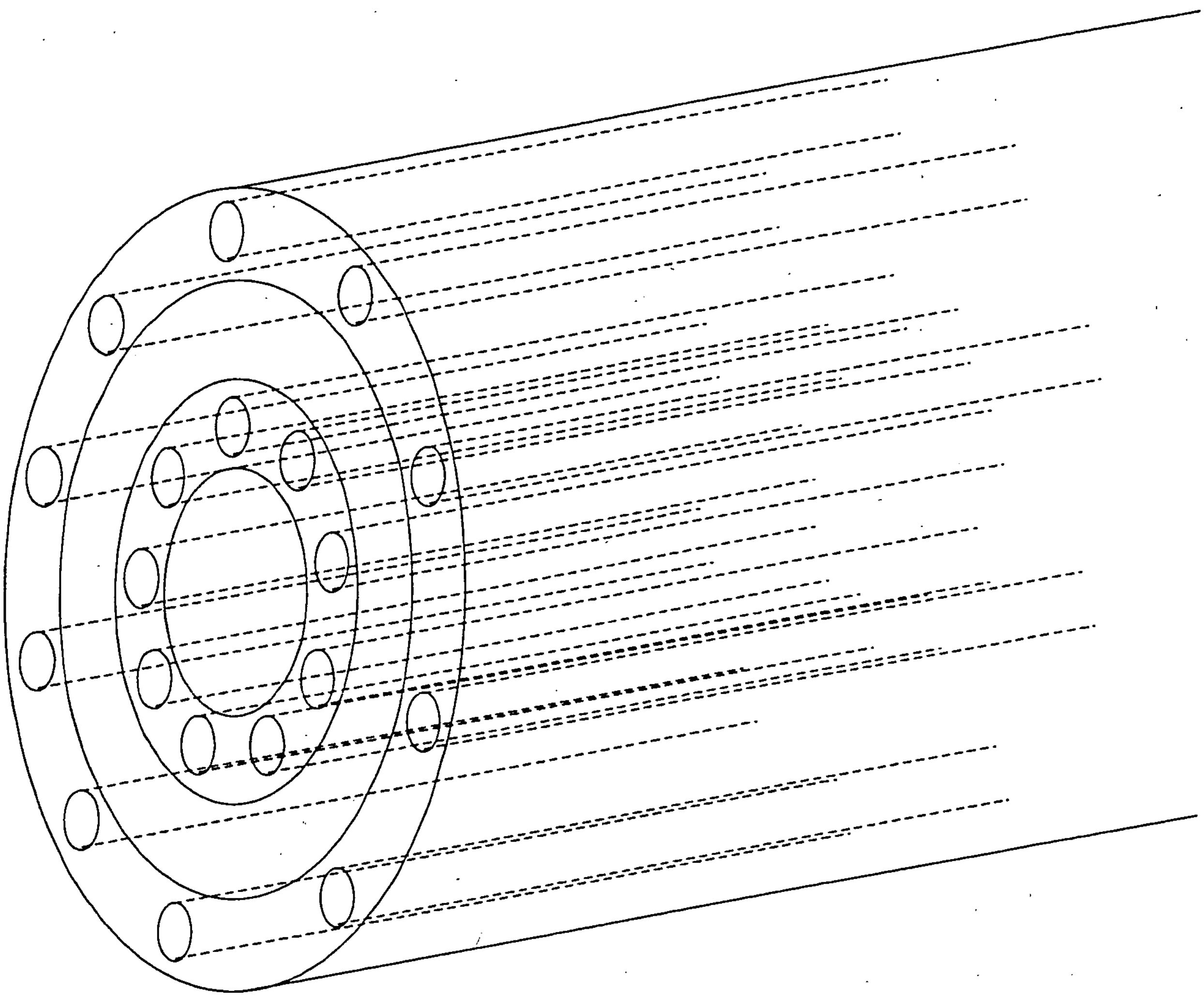


Fig. 4b The index contrast between two adjacent layers is achieved by using long hall empty or filled.

(prior art)

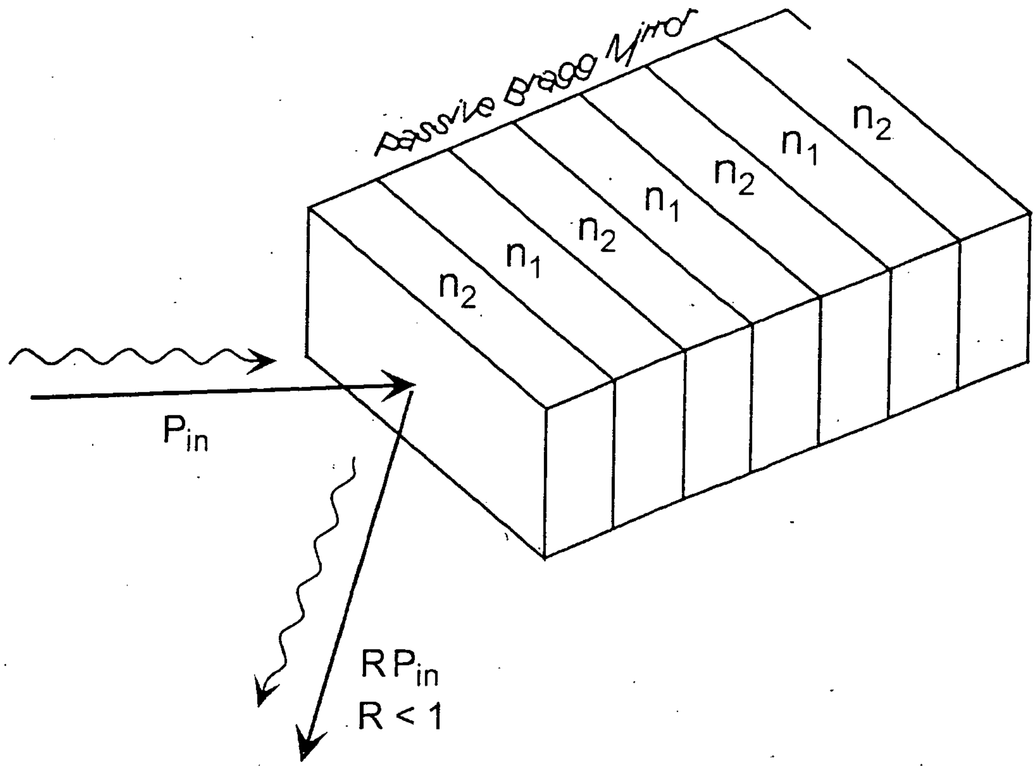
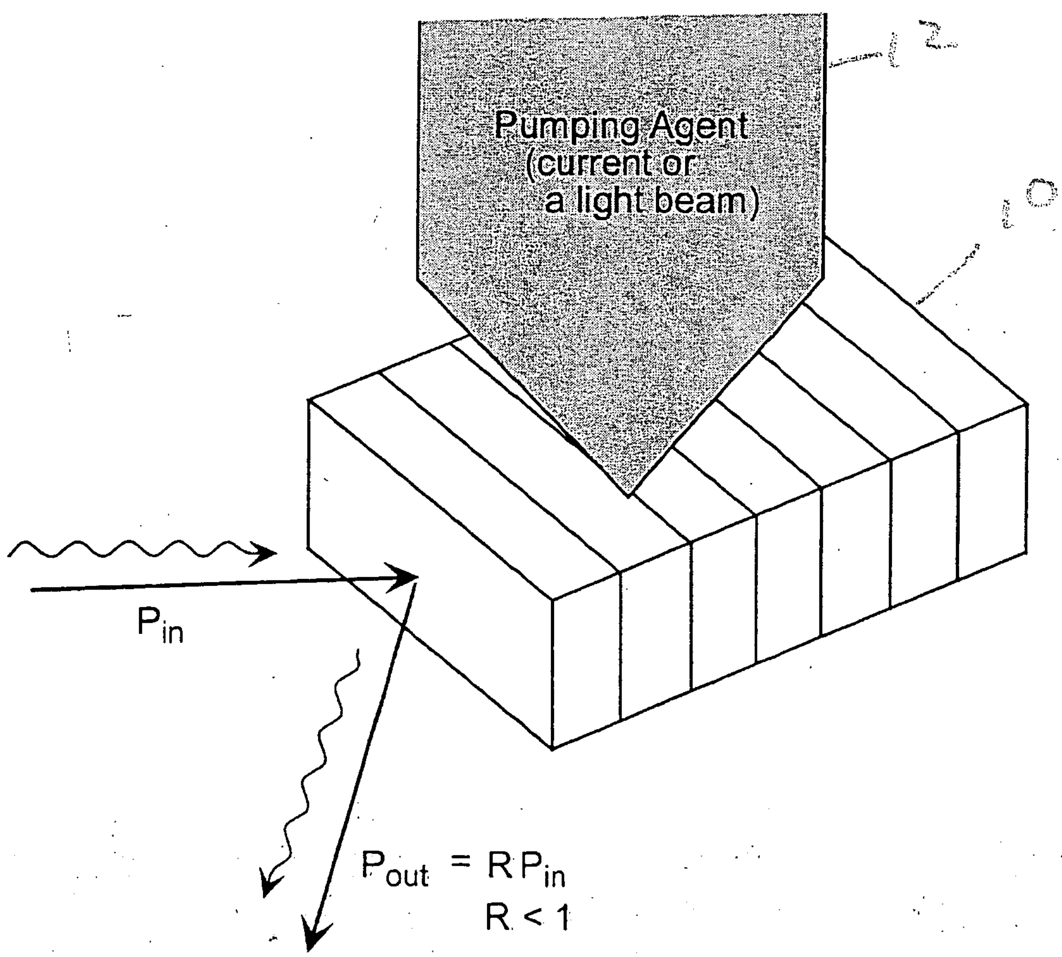


Fig. 5 (a) A passive Bragg reflector

(prior art)



(prior art) Fig 5 (b) An amplifying Bragg reflector

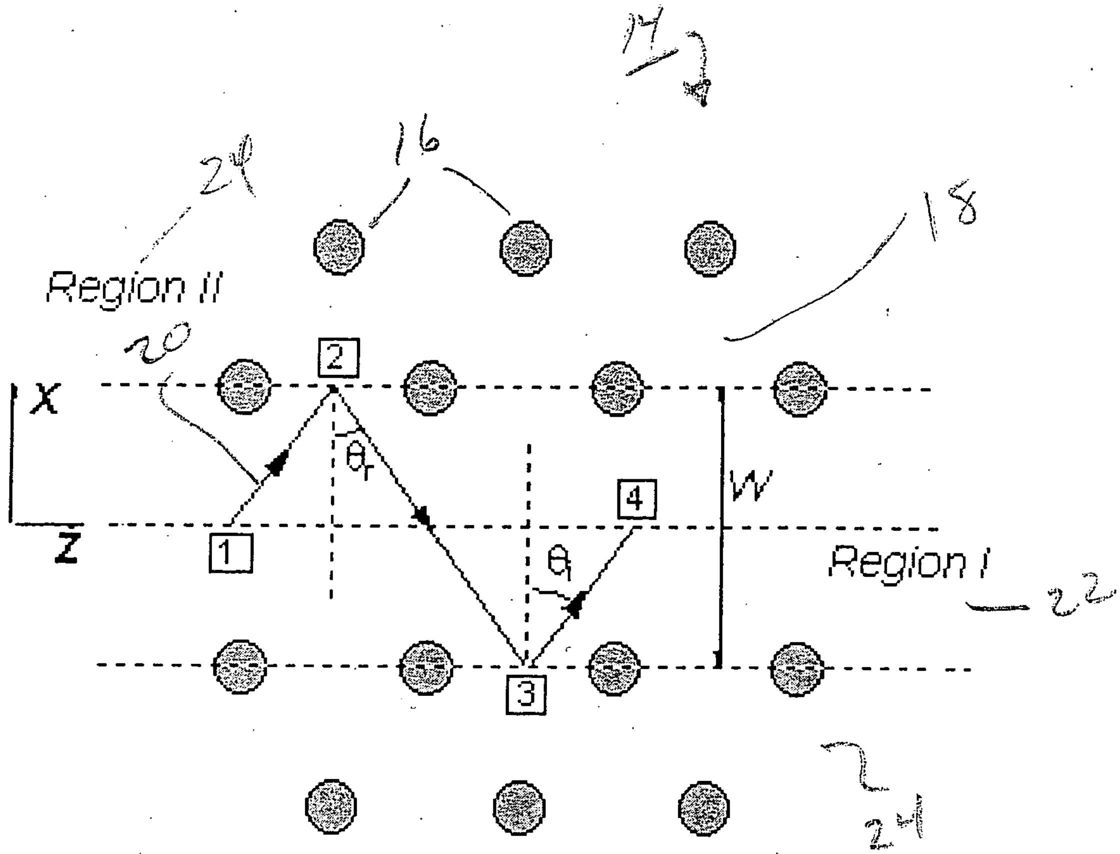


Fig. 6 Top view of a 2D periodic waveguiding structure: a guiding channel of width W (core) between two semi-infinite arrays of air holes in a periodic pattern, e.g., a triangular lattice (cladding). Also shown, in the core, are the two in-plane *k*-vectors of the plane waves that comprise the waveguide mode.

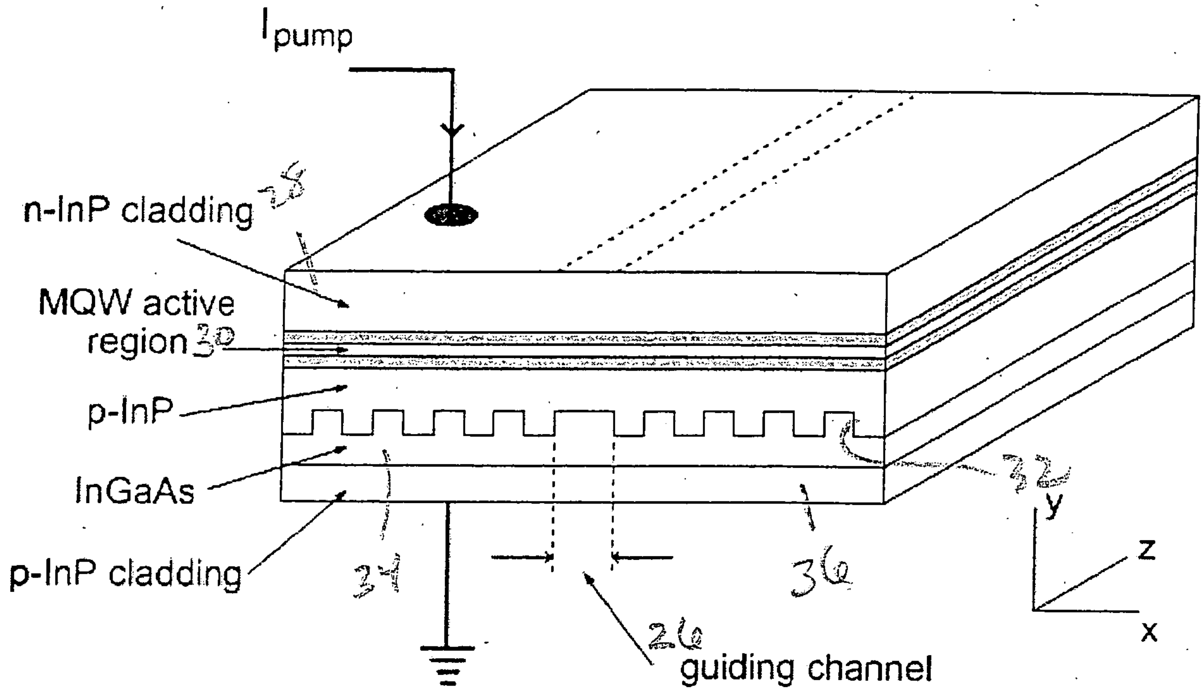


Fig. 7 Schematic of proposed TBR laser amplifier structure in InP-based material. The parallel trenches flanking the guiding channel define a periodic index variation in the transverse (x) direction, and contribute to the modal confinement. [MQW: multiple quantum-well region.]

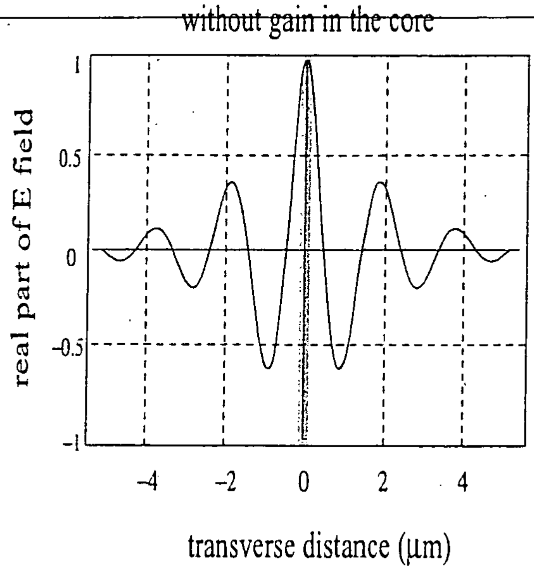


Fig. 8a

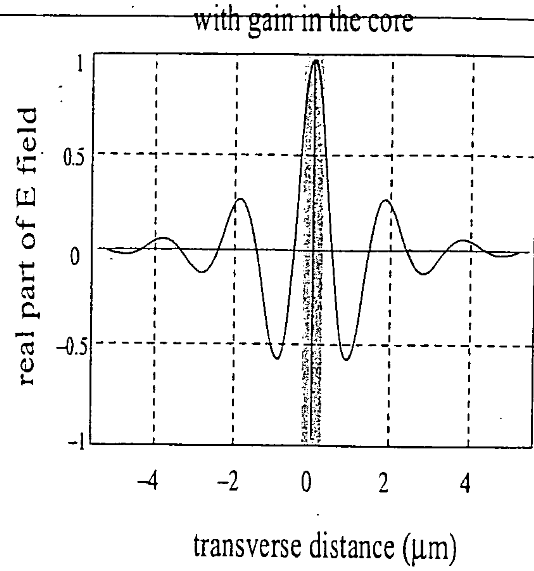


Fig. 8b

Figure 2, A. Yariv, Y. Xu and S. Mookherjea